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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/582,805

06/14/2006

Junta Yamamichi

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08/31/2009

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EXAMINER

PHAM, HOA Q

ART UNIT

PAPER NUMBER

2886

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/582,805	<b>Applicant(s)</b> YAMAMICHI ET AL.	
	<b>Examiner</b> HOA Q. PHAM	<b>Art Unit</b> 2886	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/30/06&amp;10/31/07</u> .                                    | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

2. The information disclosure statement (IDS) submitted on 8/30/06 and 10/31/07 has been considered. A copy of form PTO-1449 is attached.

### ***Drawings***

3. Drawings filed on 2/19/09 are accepted.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 7-8, (14-15)/(1-3, 7-8) and 16/15/14/(1-3, 7-8), (17-19)/14/(1-3, 7-8), 20/19/14/(1-3, 7-8) and 21/20/19/14/(1-3, 7-8) are rejected under 35 U.S.C. 102(b) as being anticipated by Lakowicz et al (2005/0053974).

Regarding claim 1, Lakowicz et al discloses a substrate of a target substance detection element to be used for a detection apparatus for detecting a target substance,

Art Unit: 2886

utilizing surface plasmon resonance, comprising: a base (i.e., first medium (104)); and a metal structure (i.e., first layer (102)) arranged on a surface of the base (104) in a localized manner, said metal structure (102) having a loop section (122) (figures 6, 10b-10d and paragraphs [0117]-[01200]).

Regarding claims 2-3, see paragraph [0118] for the metal structure has a largest length within a range 10 nm to 500 nm.

Regarding claim 7, paragraph [0017] teaches that the metal structure (102) is made of a metal selected from gold, silver, copper and aluminum or an alloy of any of them.

Regarding claim 8, paragraph [0017] teaches that the base is optically transparent (i.e., glass plate).

Regarding claim 14/(1-3, 7-8) and 15/(1-3, 7-8); see figure 1 of Lakowicz et al.

Regarding claims 16/15/14/(1-3, 7-8) and 17/14/(1-3, 7-8), see paragraph [0122] for the use of a light detector (114).

Regarding claims (18-19)/14/(1-3, 7-8), 20/19/14/(1-3, 7-8) and 21/20/19/14/(1-3, 7-8), see paragraph [0148] or claim 40 for the target capturing body is one or more antibodies, fragments of antibodies, etc...

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 4-6, 9-13, 14/(4-6, 9-13), 15/(4-6, 9-13), 16/15/(4-6, 9-13), 17/14/(4-6, 9-13), (18-19)/14/(4-6, 9-13), 20/19/14/(4-6, 9-13) and 21/20/19/14/(4-6, 9-13) are rejected under 35 U.S.C. 103(a) as being unpatentable over Lakowicz et al.

Regarding claims 4-6, it would have been obvious matter of design choice to use a plurality of metal structures that are spaced apart from each other by a distance within a range not smaller than 50 nm and not greater than 2,000 nm or not smaller than 150 nm and not greater than 1,000 nm which ever suitable for the device.

Regarding claims 9-10, Lakowicz et al teaches that the apertures have different shapes (paragraph [0129] and the conductive material (102b) having ring shaped regions, circles, etc.. (par. [0130]). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apertures of Lakowicz et al so that they have at least either of a loop section and a crossing section because it does not matter what shape they have, the device would function in the same manner.

Art Unit: 2886

Regarding claims 11-12, it would have been obvious matter of design choice to use a plurality of metal structures that are spaced apart from each other by a distance within a range not smaller than 50 nm and not greater than 2,000 nm or not smaller than 150 nm and not greater than 1,000 nm which ever suitable for the device.

Regarding claim 13, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the outer frame with an inner structure because this is a known arrangement which is known to serve for the purpose of Lakowicz et al.

Regarding claims 14/(4-6, 9-13), 15/(4-6, 9-13), see figure 1 of Lakowicz et al.

Regarding claims 16/15/(4-6, 9-13), 17/14/(4-6, 9-13), see paragraph [0122] for the use of a light detector (114).

Regarding claims (18-19)/14/(4-6, 9-13), 20/19/14/(4-6, 9-13) and 21/20/19/14/(4-6, 9-13); see paragraph [0148] or claim 40 for the target capturing body is one or more antibodies, fragments of antibodies, etc...

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamamichi et al (2009/0117669) discloses a substrate for target substance detecting device and Sigalas et al (2006/0072114) discloses an apparatus for sensing with metal optical filter.

Art Unit: 2886

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOA Q. PHAM whose telephone number is (571)272-2426. The examiner can normally be reached on Monday through Friday, 7:00 AM TO 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on (571) 272-2287. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hoa Q. Pham/  
Primary Examiner  
Art Unit 2886

HP  
August 27, 2009